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Coulvier Gravier observes,—"But for *the cause* which transfers from the west to the east nearly one-half the number due to each of these directions, there would come exactly the same numbers of shooting stars from the four points of the compass." But he does not state what that cause is.

From the results of all these observations it appears that the greatest *heights* at which meteors appear bear no more than a very small proportion to the earth's diameter.

Boguslawski considers the average *velocity* of meteors to be about *double* the velocity of the earth in its orbit.—(*Etoiles Filantes*, p. 102.)

The part of the heavens towards which the earth is moving at any time is always 6^h from the ⊙. At 6 A.M. the observer's meridian is in the direction of the earth's motion: and at 6 P.M. in the opposite.

Thus the greatest number of meteors are encountered when the observer's meridian is in the direction of the earth's motion; and the number diminishes from thence to 6 P.M., when he looks the opposite way.

Combining these facts, the author explains the results (illustrated by a diagram), on the principle that if the meteors be distributed equally in space they would converge to the earth, if at rest, equally on all sides.

But if the earth be in motion, and with a velocity one-half the average velocity of the meteors, they would converge to it more on the side towards which it is moving than the other: and, in the proportion of nearly two-thirds of the number, would have an apparent motion more or less opposed to that of the earth, and apparently diverging from the point towards which the earth is moving with a gradual increase in number from 6 P.M. to 6 A.M.

The work of Coulvier Gravier and Saigey here referred to contains a very full historical summary of all that has hitherto been done in the study of meteors, and was apparently intended as the preface to a series of observations which, so far as we are aware, has not yet appeared. The work of Mr. Schmidt, *Resultate aus zehnjahrigen Beobachtungen über Sternschnuppen*, published in 1852, requires no recommendation to readers of German.

Extract from a Letter from Professor Argelander.

"I have read with much pleasure in the last number of the *Monthly Notices* the paper of Mr. Pogson on variable stars. Mr. Pogson has, by his communication on these interesting objects, acquired new laurels; and every one who is employed in observations of them will thank him for his published times of maxima

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and minima. For the stars which are constantly visible the knowledge of these times is in some respects of less importance, and it is very much to be wished that they should be closely looked after in all stages of their variability, and be observed by many more astronomers. But for the great number of these stars, which are only visible for a short time even in large telescopes, a previous approximate knowledge of their times is indispensably necessary for the observer to escape from the needless loss of time caused by frequent fruitless searches. Indeed without such previous warning many a phenomenon would pass altogether unobserved.

"The numbers given by Mr. Pogson do not, however, appear to be all based on the most certain elements; for instance, those for the older stars seem for the most part to be derived from my contributions to the *Cosmos* of Humboldt. Since the publication of these contributions our knowledge of the elements of the variability of many of those changing stars has, however, been greatly increased, so that the older elements are now comparatively no longer of use. I beg, therefore, to communicate some corrections, with the request that they may be made known through the *Monthly Notices*.

"I give, firstly, the times of maxima in the present year for those stars for which my further researches have supplied corrections to my earlier elements:—

R Cancri,	Maximum,	1857,	Feb. 23
R Leonis,	—	—	June 21
S Serpentis	—	—	April 5
R Serpentis	—	—	Sept. 29
χ Cygni	—	—	Dec. 19
R Pegasi	—	—	March 5
R Aquarii	—	—	April 16
μ Cephei	—	—	April or May.

μ Cephei is Herschel's Garnet star.

"*α Cassiopeæ*, *ε Aurigæ*, R *Coronæ*, and *β Pegasi* are only occasionally variable; R *Hydræ*, *α Herculis*, and R *Scuti*, are, as Mr. Pogson has already remarked, very irregular: the minima of R *Scuti* ought to occur about Feb. 9, April 21, July 2, Sept. 12, and Nov. 23, and the maxima 40 days after the minima; but these times may fluctuate 15 or 20 days.

"For the calculation of the epochs of the short-period-variables the following data are available:—

ζ Geminorum — Minimum, 1857, Feb. $7^{\mathrm{d}}\ 7^{\mathrm{h}}{\cdot}2$, G.M.T.
Period, $10^{\mathrm{d}}\ 3^{\mathrm{h}}\ 48^{\mathrm{m}}{\cdot}0$. Max. $5^{\mathrm{d}}\ 5^{\mathrm{h}}{\cdot}5$ after the Min.

Observations are well represented by the formula,—

$$1857,\ \text{Jan. } 7^{\mathrm{d}}\ 19^{\mathrm{h}}\ 51^{\mathrm{m}}{\cdot}2 + 10^{\mathrm{d}}\ 3^{\mathrm{h}}\ 47^{\mathrm{m}}\ 59^{\mathrm{s}}{\cdot}4\ E + 1^{\mathrm{s}}\ E^2;$$

where E is the number of periods elapsed from 1857, Jan. 7.

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